The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A waveguide system comprising:

a bottom cladding layer;

a plurality of core channels suitable for optical transmission **extending along the a top surface of the ~~formed on top of the~~** bottom cladding layer**, wherein at least some of the core channels have a curved section formed so that a bottom surface of the core channel lies on the top surface of the bottom cladding layer**;

a patterned top cladding layer formed on top of both the bottom cladding layer and the core channels such that the core channels are sandwiched between the bottom and the top cladding layer **and wherein the patterned top cladding layer has at least one opening that exposes the curved section of the core channel to the ambient air enabling a radius of the curved section to be smaller than when the top cladding layer covers the curved section**;

and

a plurality of optical lenses formed on the bottom cladding layer and positioned in the optical path of the ends of the plurality of the core channels respectively, wherein the patterned top cladding layer is patterned so that a substantial portion of each of the plurality of optical lenses are exposed to ambient air respectively.

2. (Previously Presented) A waveguide system as recited in claim 1 wherein each of the plurality of optical lenses are spaced from the ends of the core channels so that the ambient air is provided between the ends of the core channels and the plurality of optical lenses respectively.

3. (Currently Amended) A waveguide system as recited in claim 1 wherein **the curved section of** at least some of the core channels **are configured to include a straight portion on either end of the curved section, and wherein said at least one opening in the patterned top cladding layer exposes the curved section and at least some of the straight portion of the core channel to the ambient air ~~have a curved section wherein a lengthwise portion of a respective core channel follows a curved path, and wherein the patterned top cladding layer has at least one opening that exposes the curved section of the core channel to the ambient air so that a radius of the curved section is smaller than when the top cladding layer covers the curved section~~**.

4. (Previously Presented) A waveguide system as recited in claim 3 wherein the index of refraction of the core channels is at least approximately 0.3 greater than the index of refraction of the bottom cladding layer and of the ambient air, respectively.

5. (Previously Presented) A waveguide system as recited in claim 3 wherein the curve opening exposes a curved section of more than one core channel.

6. (Previously Presented) A waveguide system as recited in claim 3 wherein the shape of the opening conforms to the curved path of the curved section of a respective core channel.

7. (Previously Presented) A waveguide system as recited in claim 3 wherein the curved path of the curved section of a respective core channel follows a turn of approximately 90 degrees or more.

8. (Previously Presented) A waveguide system as recited in claim 1 wherein the patterned top cladding layer has at least one access via that exposes a core channel to the ambient air, whereby the access via provides access for optical communication with the exposed core channel.

9. (Previously Presented) A waveguide system as recited in claim 8 further comprising an external optical device placed proximate to the access via such that the external optical device is in optical communication with the exposed core channel.

10. (Previously Presented) A waveguide system as recited in claim 8 wherein the access via exposes a plurality of core channels to the ambient air, whereby the access via provides access for optical communication with the exposed core channels.

11. (Previously Presented) A waveguide system as recited in claim 1 wherein the core channels are formed of a polymer material.

12. (Currently Amended) A waveguide system comprising:

a bottom cladding layer;

a core channel **formed on a top surface of the bottom cladding layer, the core channel** having a curved section which follows a curved path **on the bottom cladding layer**; and a selectively patterned top cladding layer formed on top of both the bottom cladding layer and the core channel such that the core channel is sandwiched between the bottom and the top cladding layer, wherein the top cladding is selectively pattered to have at least one opening that exposes the curved section of the core channel to the ambient air so that a radius of the curved section is smaller than otherwise possible if the top cladding layer covered the curved section.

13. (Previously Presented) A waveguide system as recited in claim 12 wherein the index of refraction of the core channels is at least approximately 0.3 greater than the index of refraction of the bottom cladding layer and of the ambient air, respectively.

14. (Previously Presented) A waveguide system as recited in claim 12 wherein the opening exposes a curved section of more than one core channel.

15. (Previously Presented) A waveguide system as recited in claim 12 wherein the curved path of the curved section of the core channel follows a turn of approximately 90 degrees or more.

16. (Previously Presented) A waveguide system as recited in claim 12 wherein the top cladding layer has at least one access via that exposes the core channel to the ambient air, whereby the access via provides access for optical communication with the exposed core channel.

17. (Previously Presented) A waveguide system as recited in claim 16 further comprising an external optical device placed proximate to the access via such that the external optical device is in optical communication with the exposed core channel.

18. (Currently Amended) An apparatus, comprising:

a light source;

a multi-channel transmission waveguide optically coupled to receive light from the light source, the transmission waveguide producing a set of light beams by guiding the light received from the light source so that the set of light beams emanate from the transmission waveguide in a first direction;

a multi-channel reception waveguide spaced apart from the transmission waveguide in the first direction, the reception waveguide receiving the set of light beams emanating from the transmission waveguide;

wherein the transmission waveguide and the reception waveguide are each formed of at least,

a bottom cladding layer;

a plurality of core channels suitable for optical transmission formed on top of the bottom cladding layer, each of the core channels having a first end and a second end **and a curved portion arranged therebetween, the curved portion being formed so that a bottom of the curved portion is formed on the top of the bottom cladding layer**; and

a patterned top cladding layer formed on top of both the bottom cladding layer and the core channels such that the core channels are sandwiched between the bottom and the patterned top cladding layer **and wherein the patterned top cladding layer has at least one opening that exposes at least one curved portion of the core channel to the ambient air enabling a radius of the curved section to be smaller than when the top cladding layer covers the curved portion**;

a plurality of optical lenses formed on the bottom cladding layer and positioned in the optical path of the ends of the plurality of the core channels respectively, wherein the patterned top cladding is patterned so that at substantial portion of each of the plurality of optical lenses are **[[are]]** exposed to ambient air; and

a light detector optically coupled to the reception waveguide to receive the light from the reception waveguide, the light detector including a plurality of light detecting elements that detect light intensity of the light from the reception waveguide.

19. (Previously Presented) An apparatus as recited in claim 18 wherein the apparatus is an input device for an electronic device, and

wherein an input area is produced between the transmission waveguide and the reception waveguide.

20. (Previously Presented) An apparatus as recited in claim 18 wherein at least some of the core channels of the transmission waveguide and the reception waveguide have a curved section wherein a lengthwise portion of a respective core channel follows a curved path, and wherein the patterned top cladding layer has at least one opening that exposes the curved section of the core channel to the ambient air.

21. (Previously Presented) An apparatus as recited in claim 20 wherein the index of refraction of the core channels is at least approximately 0.3 greater than the index of refraction of the bottom cladding layer and of the ambient air, respectively.

22. (Previously Presented) An apparatus as recited in claim 20 wherein the curved path of the curved section of a respective core channel follows a turn of approximately 90 degrees or more.

23. (Previously Presented) An apparatus as recited in claim 18 wherein the patterned top cladding layer of each of the transmission waveguide and the reception waveguide has at least one access via that exposes a core channel to the ambient air, whereby the access via provides access for optical communication with the exposed core channel.

24. (Previously Presented) An apparatus as recited in claim 23 further comprising an external optical device placed proximate to the access via of each of the transmission waveguide and the reception waveguide such that the external optical devices are in optical communication with the respective exposed core channels.

25. (New) The waveguide system of Claim 1 wherein the at least one opening in the selectively patterned top cladding layer exposes the entire curved section of the core channel to the ambient air.

26. (New) The waveguide system of Claim 12 wherein the at least one opening in the top cladding layer exposes the entire curved section of the core channel to the ambient air.

27. (New) A waveguide system comprising:

a bottom cladding layer;

a core channel having a curved section which follows a curved path on a top surface of the bottom cladding layer, said curved path having a radius; and

a selectively patterned top cladding layer formed on top of both the bottom cladding layer and the core channel such that the core channel is sandwiched between the bottom and the top cladding layer, wherein the top cladding is selectively pattered to have at least one opening that exposes the **entire** curved section of the core channel to the ambient air so that the radius of the

curved section is smaller than otherwise possible if the top cladding layer covered the curved section.